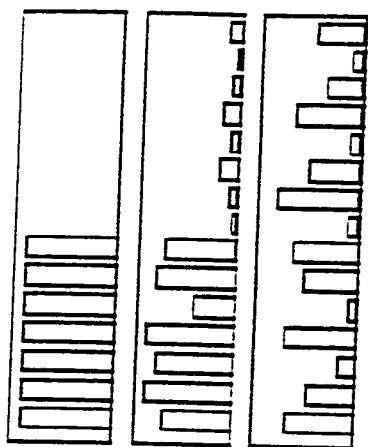


Figure 1A

AML ALL



$$C = (1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0)$$

$$\text{gene}_1 = (e_1, e_2, e_3, \dots, e_{12})$$

$$\text{gene}_2 = (e_1, e_2, e_3, \dots, e_{12})$$

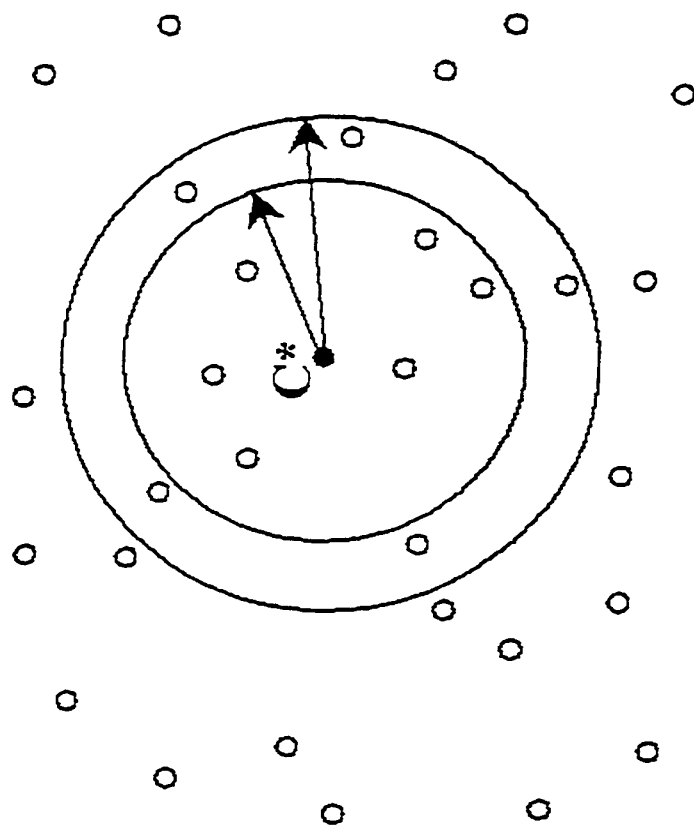
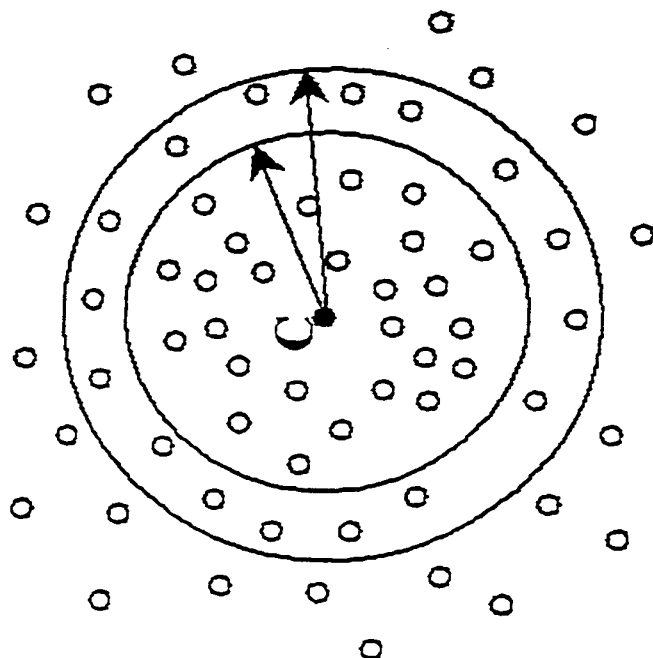


Figure 1B

Docket No.: 2825.1018-010
 Title: "Methods for Classifying ..."
 Inventors: Todd R. Golub, *et al.*

AML	ALL	Weight
	v_1	w_1
	v_2	w_2
v_3		w_3
	v_4	w_4
	v_5	w_5
\cdot	\cdot	
\cdot	\cdot	
\cdot	\cdot	
V_{AML}	V_{ALL}	

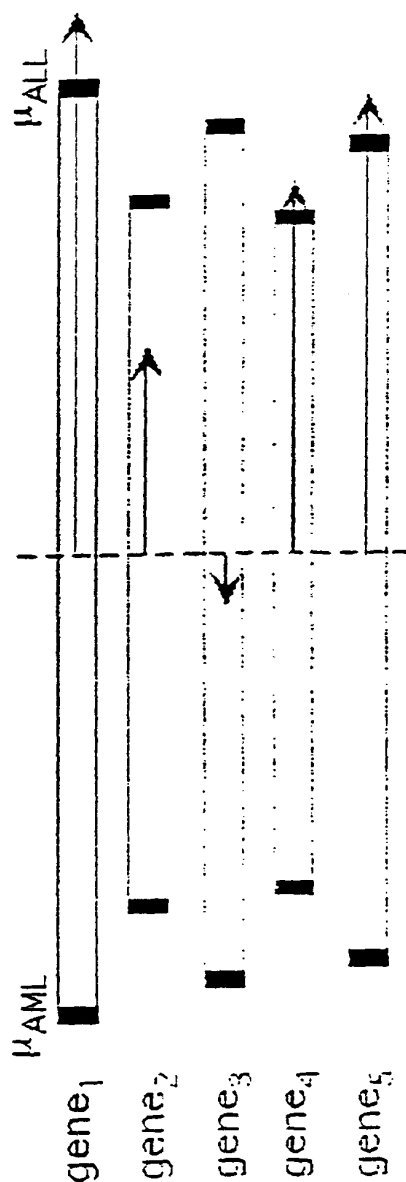


Figure 1C

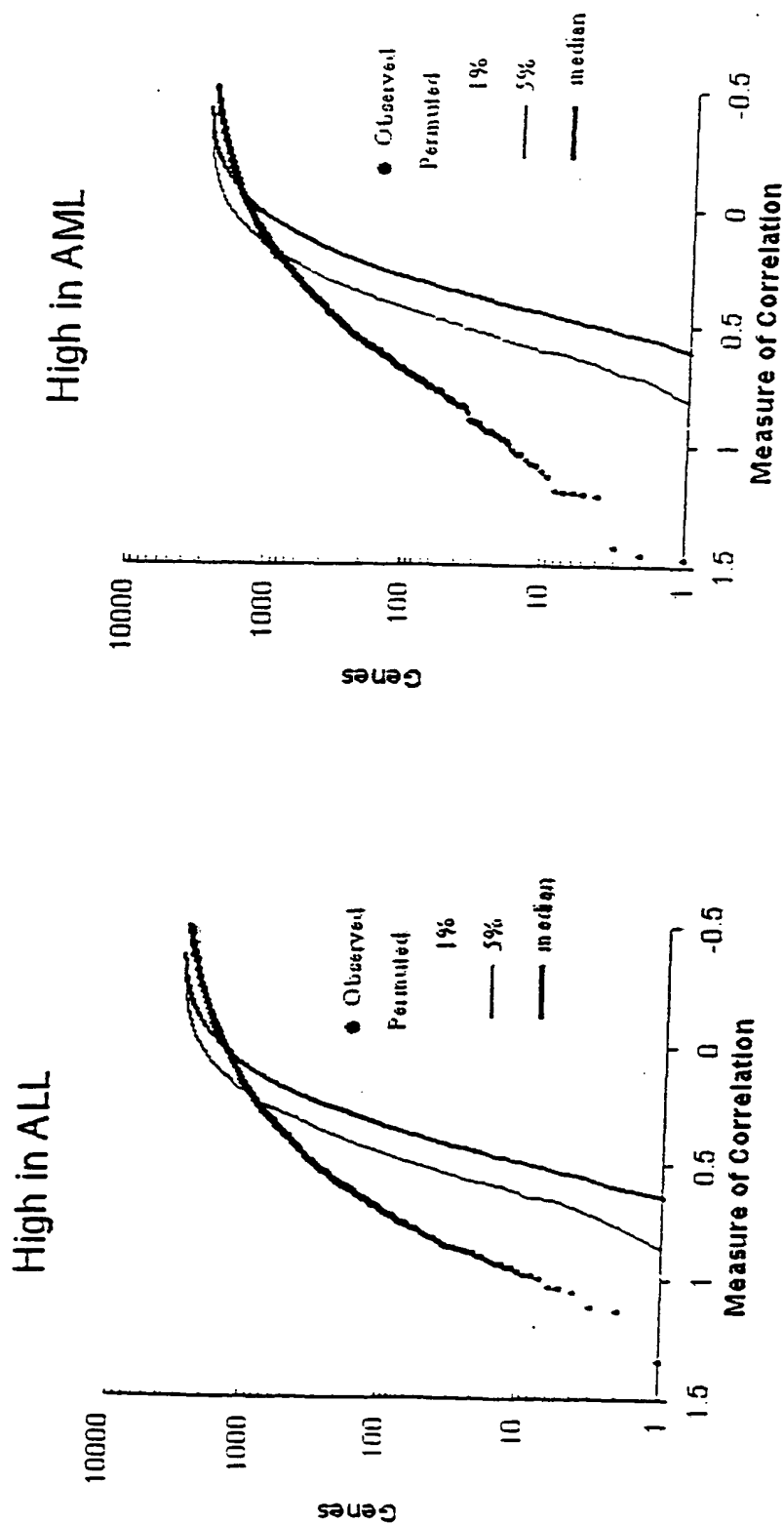
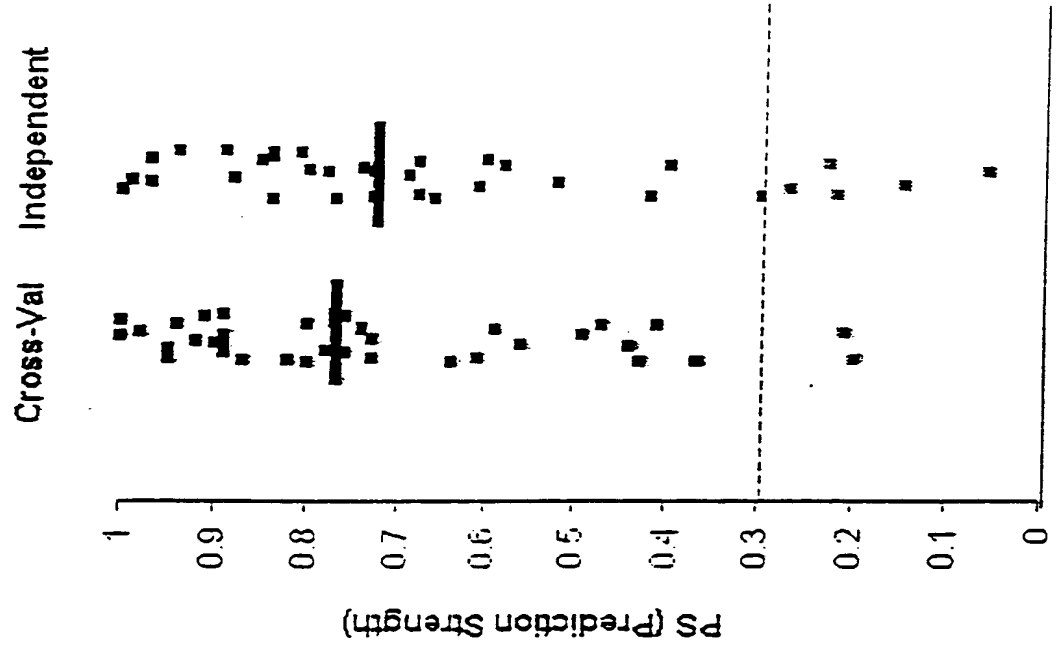


Figure 2

Fig. 3A



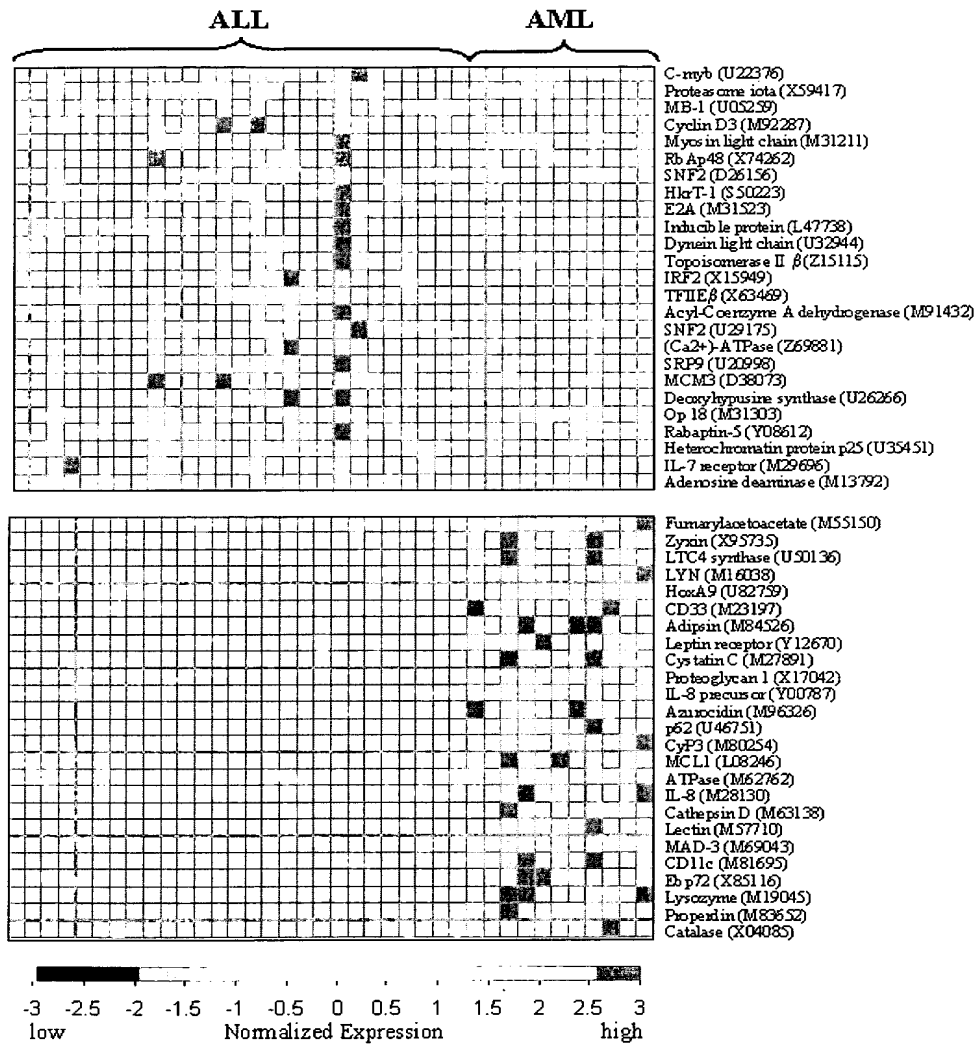


FIG. 3B

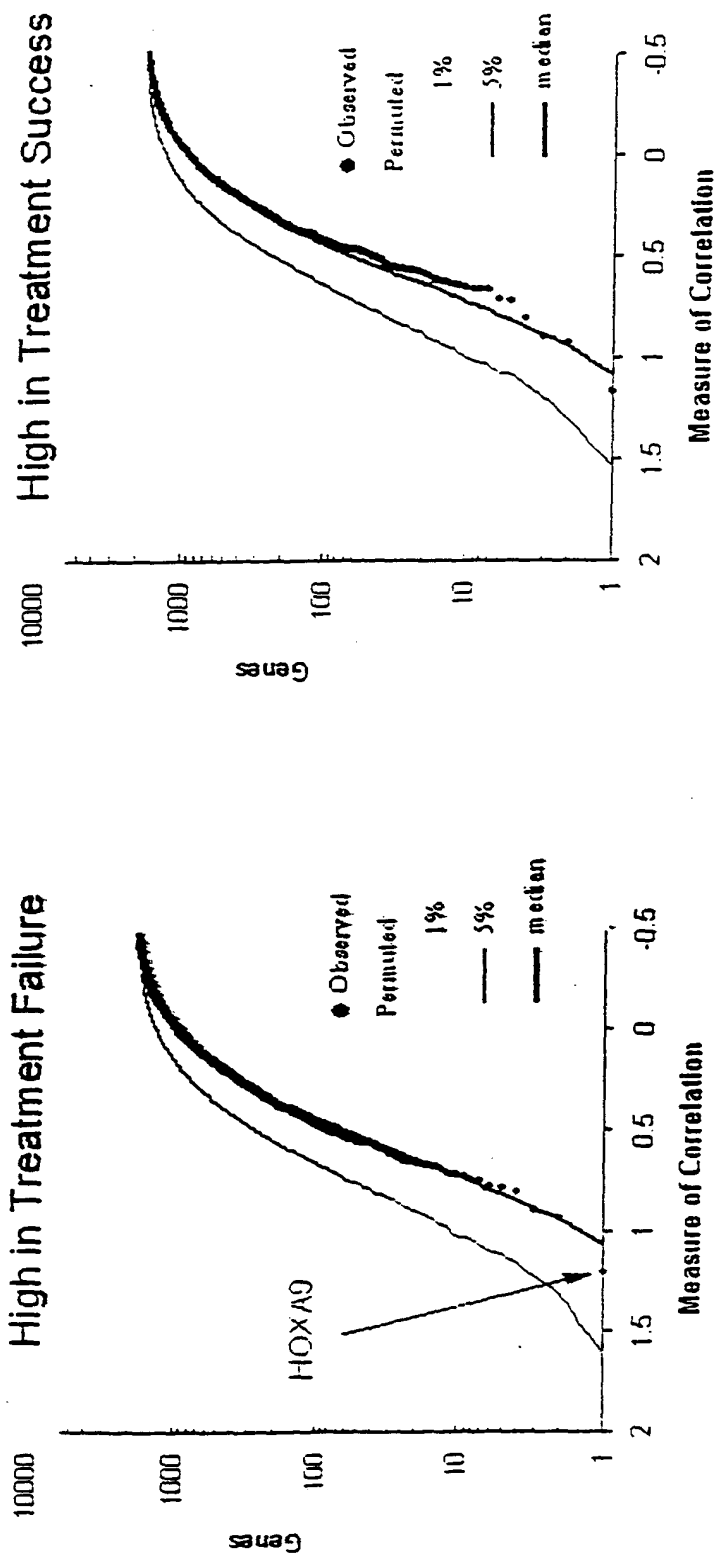


Figure 4

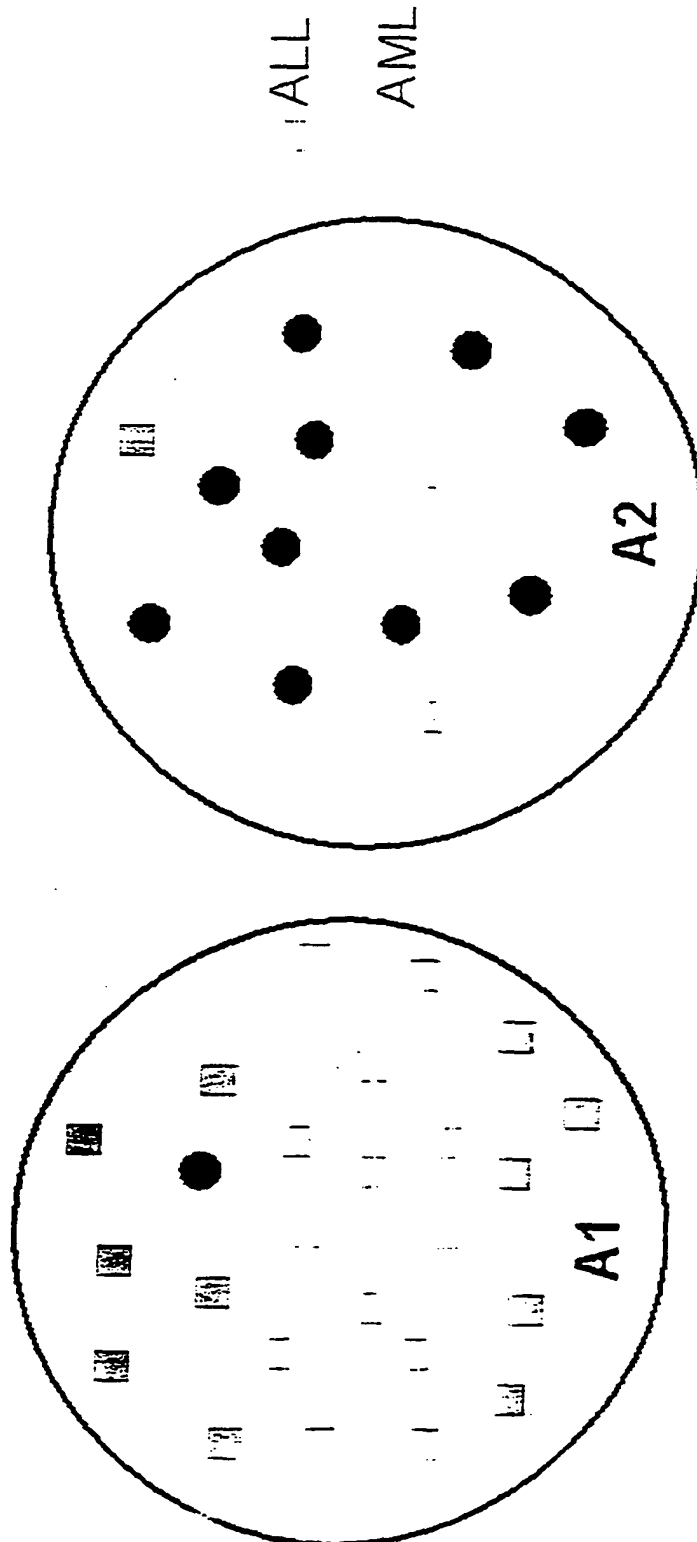


Figure 5A

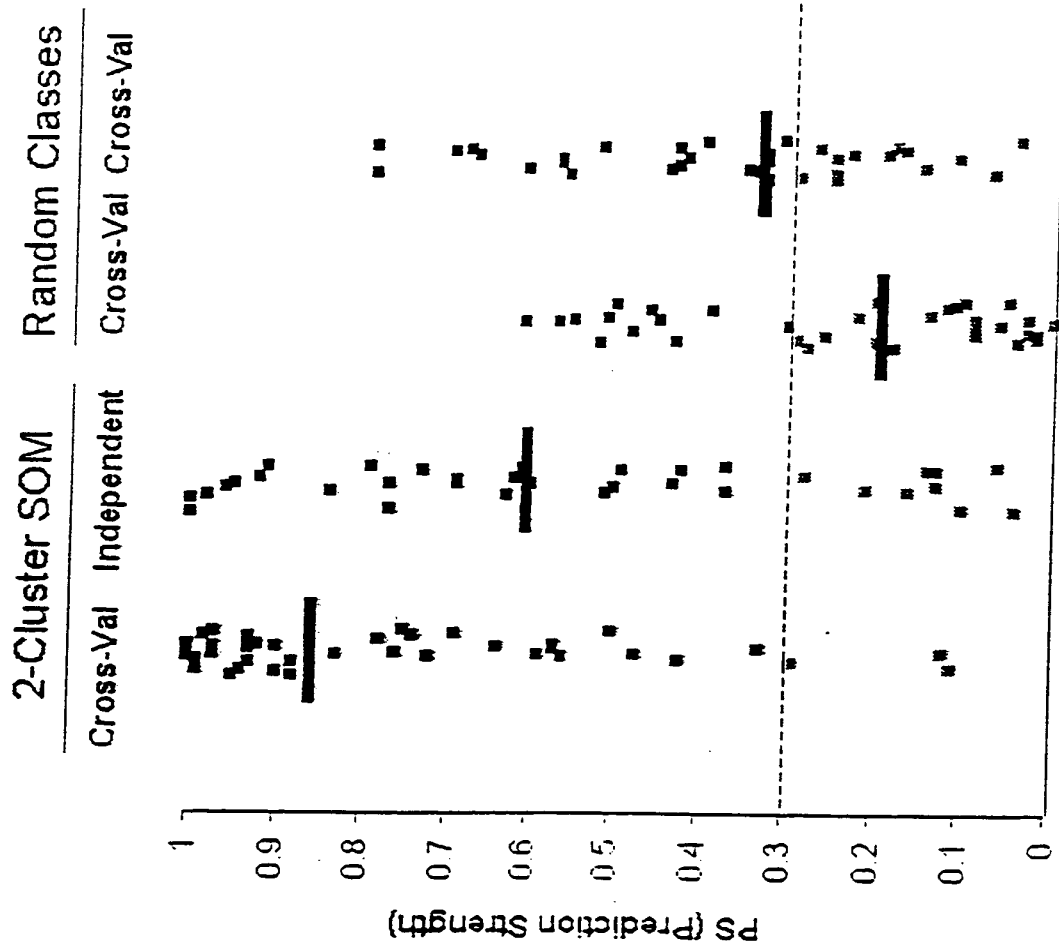


Figure 5B

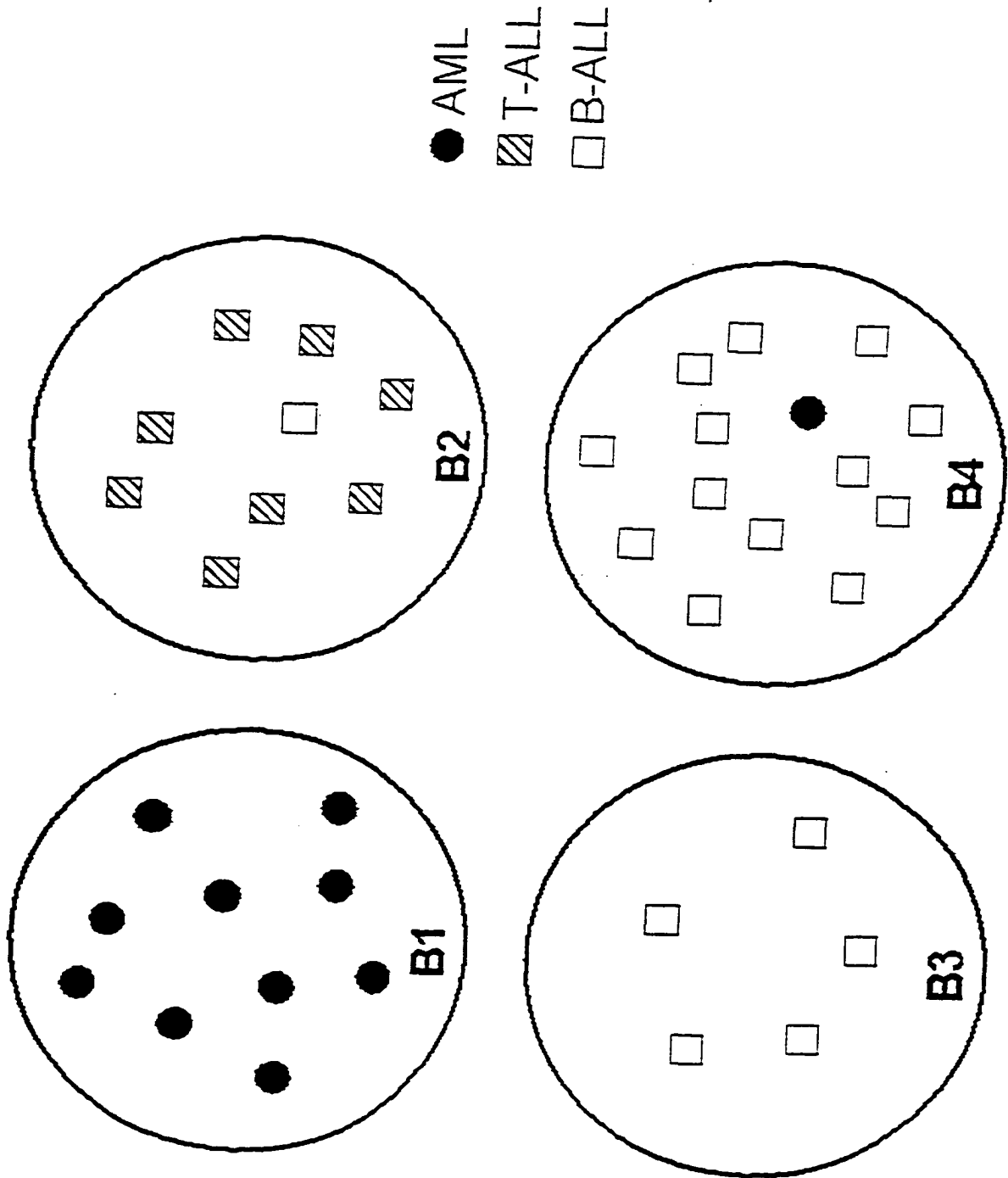


Figure 5C

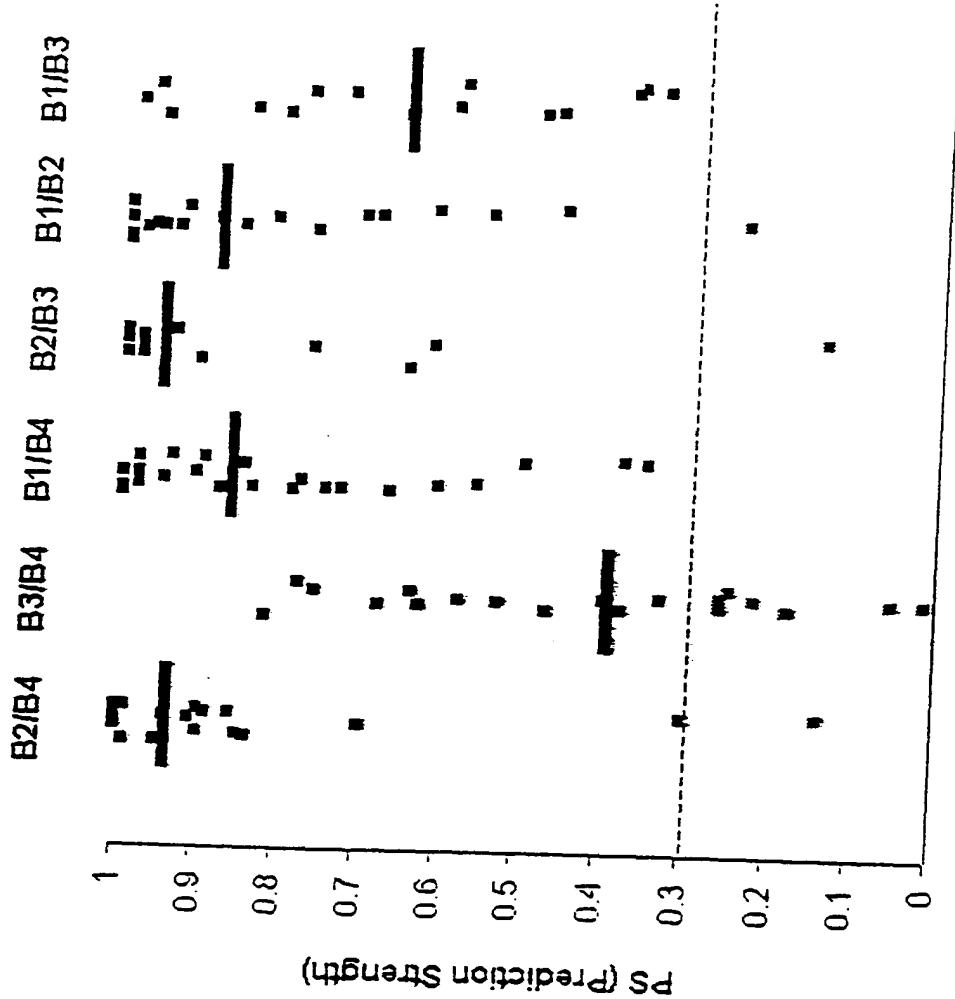


Figure 5D

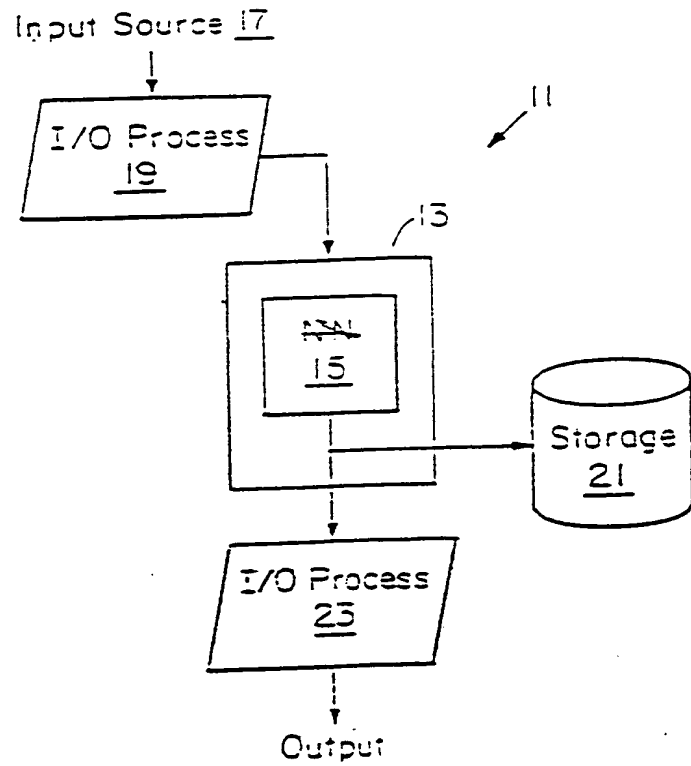


Figure 6

2025-10-18 10:00

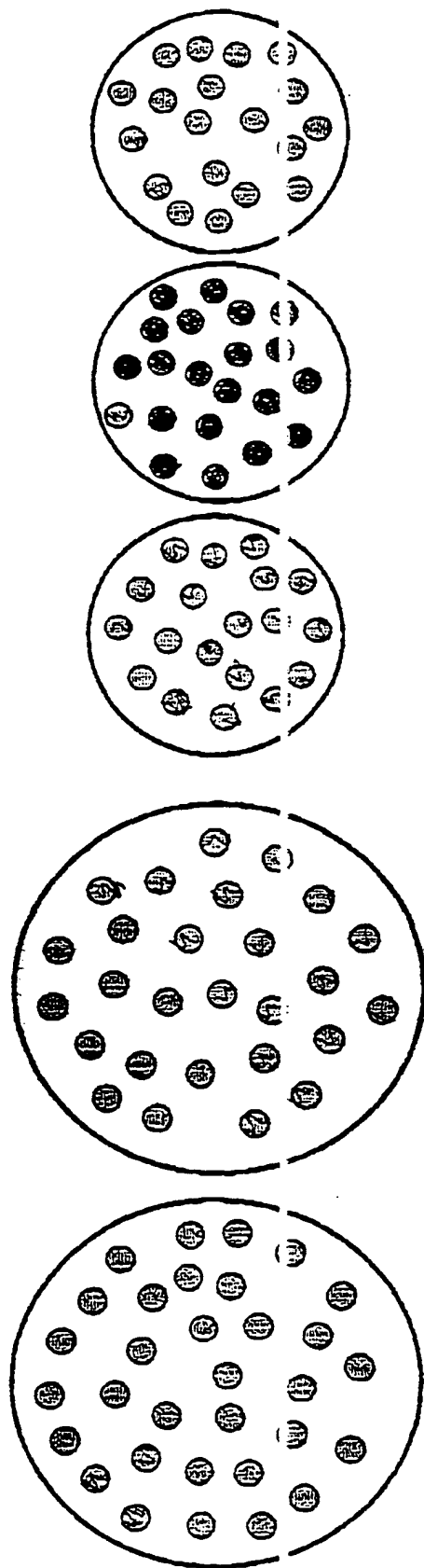
Example of Self-Organizing Map Class Discovery:

Lymphoma Large B-Cell and Follicular

Sample collection:

39 large B-Cell + 20 Follicular

Discovered Classes:



●, ⊗ Large B-Cell

⊗ Follicular

Fig. 7

Example of Self-Organizing Map Class Discovery:

Brain Glioma and Medulloblastoma

Sample collection:

24 Medulloblastomas + 15 Gliomas

Discovered Classes:

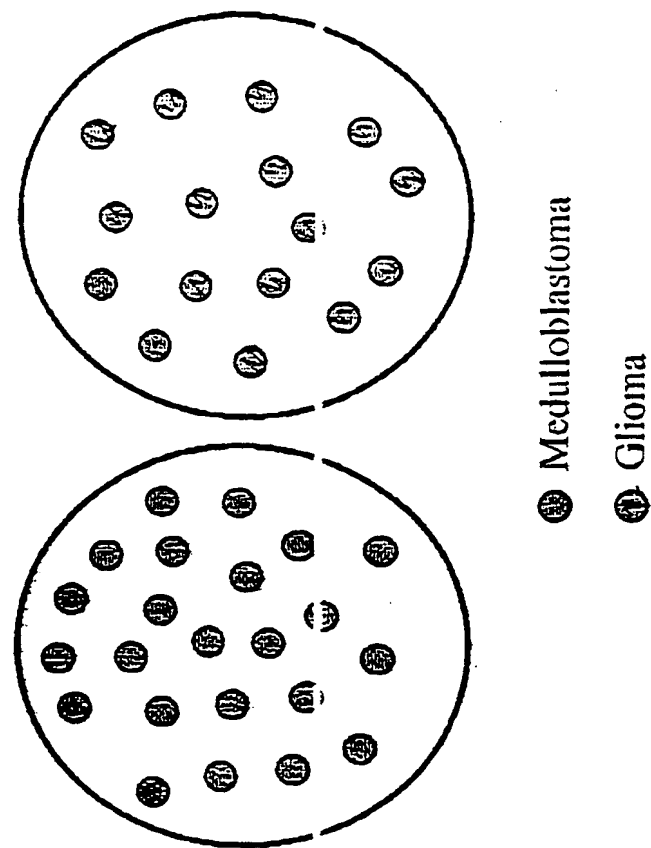


Fig. 8

Multidimensional Scaling of Leukemia Samples

(431 genes, 15-fold, $\delta > 1500$, $\text{thres} = 100$, $\text{ceil} = 16,000$)

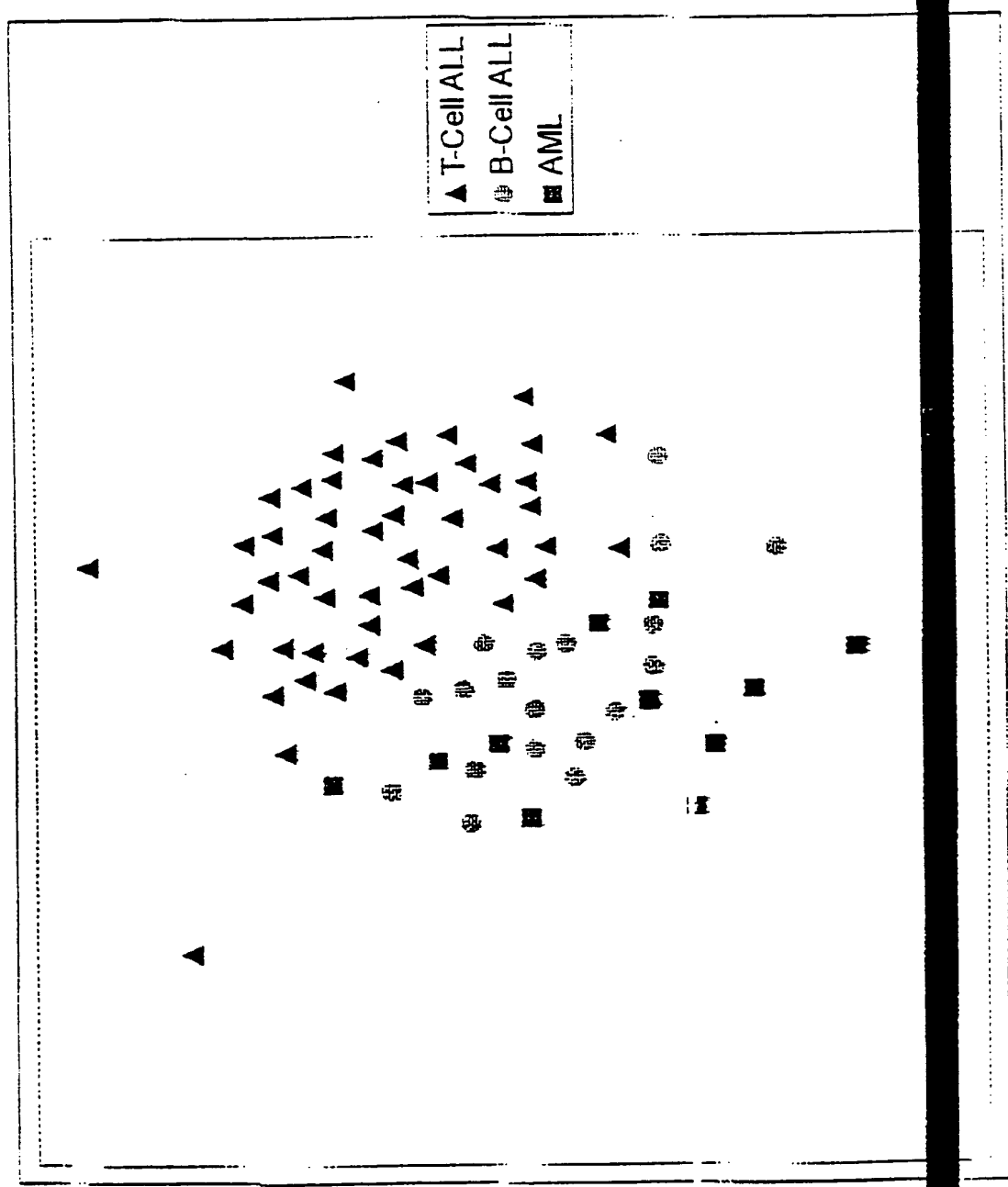


Fig. 9

Hierarchy of Problems in Molecular Class Prediction









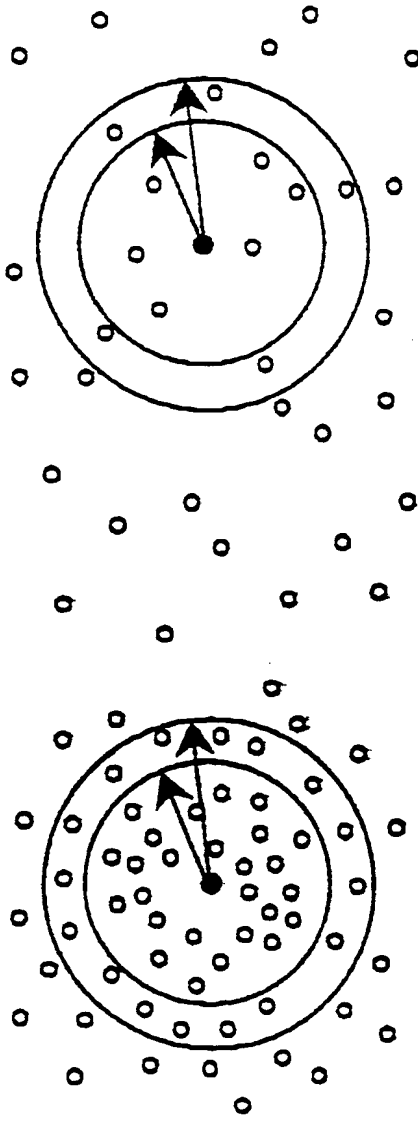
Problem:	Difficulty:	Gene Markers:	Error:	Example:
I. Tissue or Cell Type Normal vs. Abnormal	Low	~1000-2000	~0%	<div>   </div> <p>Normal vs. Renal Carcinoma</p>
II. Morphological Type	Low-medium	~200-500	~0-5%	<div>   </div> <p>Leukemia ALL vs. AML</p>
III. Morphological Subtype	Medium-high	~50-100	~0-15%	<div>   </div> <p>ALL B- vs. T-Cell</p>
IV. Treatment Outcome Drug Sensitivity	High	~1-20	~5-50%	<div>   </div> <p>AML Treatment Outcome</p>

Fig. 10

Neighborhood Analysis: Assessing Statistical Significance of Gene-Class Correlations

Gene-Class Correlations



Class Pattern Neighborhood

Permuted Pattern Neighborhood

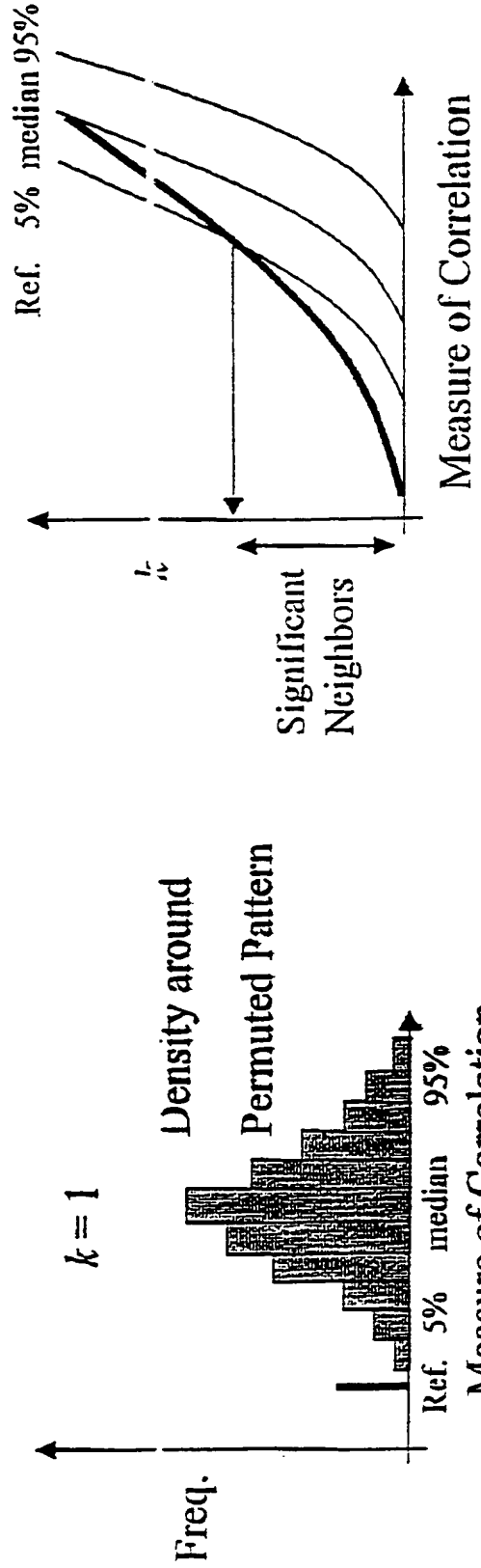


Fig. 11